

# A brief overview of China's climate policy

Lisa Zhang

## Summary

- China's approach to the climate crisis is characterised by large-scale undertakings. In 2022, the country was both the world's biggest emitter of CO<sub>2</sub> and the biggest investor in green energy.
- Under the Paris Agreement, China is committed to reaching carbon peak in 2030 and carbon neutrality in 2060, often referred to domestically as "30-60". Most experts agree that China is likely to meet these targets.
- China's overall climate policy is coordinated by the National Leading Group for Climate Change, Energy Conservation and Emissions Reduction while the Ministry of Ecology and Environment has the principal responsibility for climate crisis policy within the Chinese government.
- Until now, China has implemented its climate policies mainly through the Target Responsibility System, a top-down approach in which the central government distributes climate targets to lower-level administrations. In 2021, the Chinese government launched a new Emissions Trading Scheme to complement the Target Responsibility System.
- China has contributed substantially to bringing down the costs of important green energy technologies, such as solar photovoltaic technology. Concerns have also been raised about labour conditions in the China's green technology industries, including evidence of forced labour.

## Introduction

In [2006](#), China surpassed the US as the country with the largest annual emissions of heat-trapping gases. Given the sheer volume of China's emissions, resolving the climate crisis will be impossible without considering China's role in climate politics. There is therefore an urgent need for practitioners, decision makers and the general public to gain easy access to evidence-based and up-to-date analysis of China's climate governance. This brief addresses this need by offering a concise summary of the background to, context of and recent developments in the country's climate policy.

## A question of scale

China's approach to climate issues is marked by its huge economy. The country's CO<sub>2</sub> emissions [increased](#) rapidly following implementation of economic reform in 1978. In [1980](#), China emitted less than 1.5 Gigatonnes (Gt) of CO<sub>2</sub>; by 2021, this figure was approximately 14.1 Gt. In 2022, China was the [largest](#) emitter of methane, accounting for 15.6 percent of the global total. (A methane molecule traps 80 times the heat of a CO<sub>2</sub> molecule.) In the same year, China [contributed](#) 31 percent of the world's CO<sub>2</sub> emissions, compared to the US at 12 percent and the European Union at 7 percent. In terms of cumulative emissions (CO<sub>2</sub> emissions can remain in the atmosphere for more than a millennium), by [2021](#) China had contributed 14 percent, the US 25 percent and the EU 22 percent of global CO<sub>2</sub> emissions. Estimates of CO<sub>2</sub> emissions per capita for [2022](#) show that the average person in China emitted 8.9 tonnes, compared to 14.4 tonnes in the US and 6.3 tonnes in the EU. Around 45 percent of China's CO<sub>2</sub> emissions in [2021](#) originated from electricity generation, 35 percent from manufacturing and 8 percent from transportation. China is currently the world's [largest](#) producer and consumer of coal, while also being at the forefront of renewable power deployment with three times more capacity than any other country.

## China's climate crisis vulnerability

China is highly [vulnerable](#) to the impacts of the climate crisis and has experienced an average temperature increase of 0.26°C per decade since 1951, exceeding the global [average](#) of 0.15°C per decade. The prevalence of extreme weather events in China is increasing, as exemplified by record-breaking temperatures in the summers of [2022](#) and [2023](#). Heat-related deaths in the country [rose](#) by more than four times between 1990 and 2019, and there were 26,800 deaths in 2019. The summer of 2022 also witnessed an energy [crisis](#) in several Chinese provinces as droughts diminished hydropower capacity while power grids were carrying record breaking electricity loads due to increased use of air conditioners. China is also experiencing a dramatic [increase](#) in incidents of flooding. In the summer of 2011, the country experienced six to eight monthly floods; by 2022, there were 130 recorded floods in July and 82 in August alone. The risk of [rising](#) sea levels is pronounced in China as more than 150 million people live in low-lying coastal regions.

## China's climate targets

China is a party to the United Nations Framework Convention on Climate Change (UNFCCC) and has committed to the 2015 Paris Agreement goal to limit global warming to well below 2°C above pre-industrial levels, and to pursue efforts to limit warming to 1.5°C. Under the Convention, China is included in the Non-Annex I Group of developing nations. This classification means that historically, China's emission reduction obligations have been [voluntary](#), and that the country is under [less strict requirements](#) and entitled to support from the developed countries listed in [Annex I](#), such as the US, the United Kingdom and the EU member states. Under the Paris Agreement, signatories (including China) need to submit a Nationally Determined Contribution (NDC) every five years, which outlines the country's best efforts to curtail emissions and adapt to the climate crisis.

China submitted its [first](#) NDC in February 2016. This included targets to reach peak CO<sub>2</sub> emissions by 2030 with efforts to peak earlier, increase its share of non-fossil fuels in total primary energy consumption to 20 percent and reduce CO<sub>2</sub> emissions per unit of gross domestic product (GDP) by 60–65 percent compared to 2005 levels by 2030. China's [updated](#) NDC submitted in 2021 included more ambitious targets to achieve carbon neutrality before 2060, increase its share of non-fossil fuels in its total primary energy consumption to 25 percent and reduce CO<sub>2</sub> emissions per unit of GDP by 65 percent compared to 2005 levels by 2030. As of November 2023, the Climate Action Tracker published by Climate Analytics and the NewClimate Institute rated China's climate policies and targets as "[highly insufficient](#)" for reaching the goals of the Paris Agreement, and those of the US and the EU as "[insufficient](#)" and "[insufficient](#)". However, many analysts anticipate that China's CO<sub>2</sub> emissions will peak before 2030, while some suggest potential structural [decline](#) as early as 2024. China's strategy on setting climate targets is generally to under promise but [overachieve](#).

There is mounting [pressure](#) on China to join the [Global Methane Pledge](#) to collectively reduce methane emissions by at least 30 percent below 2020 levels by 2030. Cutting methane is considered to be the [fastest](#) method of slowing global heating. China has yet to sign the pledge but did unveil an [action plan](#) on controlling methane emissions in November 2023. Although not as ambitious as the Global Methane Pledge, the action plan aims to [reduce](#) methane emissions by an estimated 245 million tonnes of CO<sub>2</sub> equivalent by 2035 compared to 2022 levels. Leading up to the November 2023 meeting between China's President Xi Jinping (习近平) and US President Joe Biden, the two nations released a joint [statement](#) committing to increased cooperation on climate issues, particularly through the reduction of methane emissions.

## The structure of China's climate governance

China's climate policy is [coordinated](#) by the National Leading Group for Climate Change, Energy Conservation and Emissions Reduction (国家应对气候变化及节能减排工作领导小组), which was set up by the State Council, China's chief administrative authority. The National Leading Group comprises 30 ministers, directors and other senior officials, and is tasked with developing major national strategies, policies and countermeasures to address the climate crisis. In [2021](#), China create a Leading Group on Carbon Peaking and Carbon Neutrality (碳达峰碳中和工作领导小组). [Leading groups](#) coordinate the government bodies

that address important policy areas that involve multiple parts of the bureaucracy, as is the case with climate policy. China's Ministry of Ecology and Environment is the ministry with the main [responsibility](#) for climate crisis policy within the Chinese government.

China outlines its development strategy once every five years in a [Five-Year Plan](#). Climate change considerations have been incorporated into these plans since the [10<sup>th</sup> Five-Year Plan](#) (2001–2005), and more demanding goals have been set for each successive plan. The current 14th Five-Year Plan (2021–2025) aims to “strictly control” coal usage, with an expectation that coal will begin to be phased out during the 15th Five-Year Plan. Until recently, the [Target Responsibility System \(TRS\)](#) was the main mechanism for the Chinese government to implement its CO<sub>2</sub> emissions reduction targets. This system is a five-level government hierarchy from the central level at the top to the county and township levels at the bottom. The central government sets energy intensity or carbon intensity targets and distributes these to the provinces, which distribute them to the municipalities until all the targets are assigned. The TRS system has faced many implementation challenges, particularly with regard to the limited capacity of county and township governments to undertake energy-saving and carbon-mitigating activities due to resource constraints.

In recent years, China's governance of CO<sub>2</sub> emissions has [changed](#) from relying predominantly on coercive regulation to include more market incentives, such as its Emissions Trading Scheme (ETS) which began operating in 2021. China's ETS is the [largest](#) of its kind in terms of emissions regulated. Unlike its EU equivalent, China's ETS operates on intensity-based targets rather than a cap on total emissions; that is, it operates [according](#) to emissions per unit of electricity produced using a national [benchmarking](#) methodology. There is therefore no absolute [cap](#) and benchmarks are currently set [higher](#) than the average CO<sub>2</sub> emissions of a coal-fired power station. This explains the scheme's current inefficiency and why China's ETS has thus far had little impact on emissions. For now, however, China's immediate goal is not to abruptly reduce emissions, but to familiarise stakeholders with the [concept](#) of carbon trading. China's ETS currently faces two major difficulties: data integrity and the lack of high-level legislation. A [new](#) law addressing data integrity in the ETS will come into effect on the 1<sup>st</sup> of May 2024, becoming China's [first](#) national law to specifically target the climate crisis. Another anticipated [change](#) is the replacement of intensity targets with an absolute cap after 2025.

## Key terms in Chinese climate policy

In UNFCCC discussions, China is a strong [advocate](#) for the principle of “**common but differentiated responsibilities**”. This means that while all parties have a duty to take climate action under the [Paris Agreement](#), the type of action will depend on their differing circumstances. This principle also underscores that developed countries should take the lead on climate action and provide financial assistance to developing countries. China's own climate vision is encapsulated in “**ecological civilisation**”, a term [promoted](#) by Xi Jinping to provide “balanced and sustainable development that features the harmonious coexistence of man and nature”. Ecological Civilisation is often used as a [slogan](#) for China's version of environmental sustainability, which emphasises a transition from its previous growth model that proved detrimental to nature. The concept has gained international traction, as seen in the theme of the Fifteenth meeting of the Conference of the Parties to the [UN Convention on Biodiversity \(CBD\)](#): “Ecological Civilization: Building a shared future for all life on Earth”,

which was held in 2021 and 2022. China's key [policy approach](#) to peaking its CO<sub>2</sub> emissions by 2030 and achieving carbon neutrality by 2060 is the “**1+N**” [policy system](#), where the “1” represents [working guidance](#) that serves as an overarching strategic framework and the principles guiding all policies aimed at achieving China's CO<sub>2</sub> emissions reduction goals; and the “N” encompasses multiple new plans, the first of which is an action plan that sets detailed targets on energy and other crucial industrial sectors. The two goals are commonly [referred](#) to as “**30-60**”.

## The cost of China's green technology

In 2021, the Chinese government allocated approximately SEK 87 billion (€7.7 billion/RMB 59 billion) to energy research and development (R&D), which constituted [26 percent](#) of [total](#) R&D spending by all national governments. (The country is also the [leading](#) investor in fossil fuel R&D.) China was ranked [third](#) in applications for patents on renewable energy in 2019 and has achieved notable [strength](#) in solar photovoltaic and battery manufacturing. The country's efforts have contributed significantly to the [85 percent reduction](#) in the cost of solar energy since 2010, and China is projected to have a [95 percent](#) market share in solar panel manufacturing in the coming years. China also boasts the [largest](#) deployment of electric vehicles. Nearly half of the world's electric cars and [95 percent](#) of the electric buses and trucks were located in the country as of the end of 2021.

However, concerns have arisen regarding the use of [forced labour](#) in Xinjiang in the supply chains of major photovoltaic solar cell producers in China. In addition a recent [report](#) has highlighted connections with and the risk of forced labour and poor working conditions in Chinese factories producing electric buses for Swedish public transport. There is also [apprehension](#) in the EU about its internal market being “[flooded](#)” with Chinese electric vehicles, fuelled by artificially low prices linked to state subsidies. In response, the EU [launched](#) an investigation into the import of battery electric vehicles in October 2023. The situation is reminiscent of the one faced by the EU's solar panel industry in the early 2010s, when domestic production was “[outcompeted](#)” by Chinese companies.

## Different interpretations of China's climate policy

Some analysts argue that achieving carbon neutrality by 2060 will require a comprehensive shift to a new kind of economy, and that this could mark a [paradigm shift](#) in development and modernisation, while also demonstrating a way to achieve [zero-carbon economic growth](#) for developing nations. Other less optimistic scholars have highlighted the social and political cost of China's often [coercive](#) and state-led climate politics, referred to as [environmental authoritarianism](#), such as when [local officials](#) in 2021 cut off electricity in north-east China for several weeks to meet the [climate targets](#). Xi Jinping has since [called](#) on local officials to “rectify campaign-style carbon reduction”, which has been interpreted as meaning that local officials should not be overzealous in their efforts to hit targets. A third viewpoint is that China's “[eco-development](#)” trajectory, defined as reconciling economic prosperity with environmental sustainability, has had little to do with its form of governance, since its development path has been remarkably [similar](#) to that of Taiwan, South Korea and Japan. There is hence no current scholarly consensus on how China's climate policy should be interpreted and how its future climate policy might unfold.



**Lisa Zhang**

Lisa Zhang is an analyst at the Swedish National China Centre.

**About the Swedish National China Centre**

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